Attachment B

1. **DxPre Specifications:** Unless otherwise stated within col 5 of the DxPre table, the criteria within the DxPre Table (Item 3) shall be met by retaining the trees described to be marked within the Leave Tree Guidelines (Item 2). The DxPre Specifications are met when the marking or cutting meets the DxPre Specifications.

2. **Leave-Tree Guidelines:** Italicized groups of words are defined in definitions portion of Attachment A.

   Abbreviations; Rx= Silvicultural Prescription. i.e. HTH(*thinning* All HTH are variable density from below d/D=.8 emphasizing irregular spacing by creating gaps/openings & groups or clusters of trees/clumps, among group variation (thin to variable basal area/ SDI/ density targets) and within group variation (retain largest/"best" trees regardless of crown spacing).), HSL (*selection harvest*) or combination of these. TPA = *Trees per acre*. BA = *Basal area*, expressed as square feet per acre (ft^2/ac). SP= Species including PP (ponderosa pine), DF (Douglas-fir), WP (western white pine), LP (lodgepole pine), WL (western larch), RC (western red cedar) ES (Engelmann spruce), GF (grand fir), WH (western hemlock), AF (alpine fir), QA(quaking aspen). DF Dwarf Mistletoe= Douglas-fir DMT.

   Table 1

Canopy Status	Tree Class	Leave Category	Crown Ratio	Crown Vigor	DF DMR	Bark Beetle Attacks	General Marking Guidelines
Overstory	1-A	Desirable	50%+	Healthy	<1	None	Leave unless competing with larger 1-A tree.
	1-B	Satisfactory	35%+	Generally Healthy	<2	Few and Unsuccessful	Leave unless competing with larger 1-B or 1-A tree.
	1-D	Undesirable	<30%	Poor Health	>2	Many or Successful[1]	Cut as part of gap or leave as part of clump.
Understory	2-C	Acceptable	50%+	Healthy	<1	None	Leave if not competing with 1-A or 1-B tree.
	2-F	Unacceptable	<50%		>0	Any	Cut unless it is a wildlife tree.

[1]Successful attack occurs when bard beetle attacks on a tree bole are judged to be sufficient density to cause death within one year as a result of direct attacks. Successfully attacked trees often display one or more of the following attributes: large numbers of pitch tubes, or fading, chlorotic, or red crowns.

I. Leave Tree Marking:

A. The **stump mark** shall be a minimum size of 6 inches long and 2 inches wide and shall extend for at least 1 foot onto the forest floor. It shall be placed on the downhill side of the tree and in crevices as available.

I. Leave Tree Marking: ***continued***

B. A horizontal **band of orange paint** at least 2" wide must encircle the tree between 5 and 7 feet above the ground when measured on the uphill side of the tree.

C. Paint marks shall be visible for a distance of at least 100' in all directions and last until harvest operations are complete.

II. Mark to leave:

A. **ALL old trees,** as determined by scoring keys in *Identifying Old Trees and Forests in Eastern Washington* by Robert Van Pelt September 2008 http://www.dnr.wa.gov/ResearchScience/Topics/ForestResearch/Pages/lm_oldgrowth_guides.aspx. Old Trees are to have a rating of 8 or higher for PP (page 90), and 9 or higher for DF (page 130). For GF, RC, WH, and other species with no scoring key, use individual species (pages 133-158). Mark to leave Western white pine as determined by thick platy bark.

B. **ALL** Wildlife Trees having a dbh ≥ 25.0": Trees with bird holes, large nests, live snags, and trees with more cull material than sawlog material as defined as a tree with at least 51% cull material, or does not contain an 8 foot log that is at least 40% sound.

C. Emphasize retention of PP having the most desirable (**1-A**) characteristics. Trees with **1-A** characteristics do not have any indicator of disease or poor form and are not crowded. These shall be retained regardless of stocking level.

D. Generally, leave all mature trees with rating of 6-7 for PP and 7-8 for DF as determined by using Van Pelt's key. Mature trees can be removed as follows, otherwise they are to be clumped:

DBH < 25.0": Can remove if competing with old tree or larger 1-A or 1-B tree as described in Table 1 above.

DBH >25.0": Remove 1-D trees if competing with a larger old or mature 1-A/1-B tree, otherwise clump or have it as a "ghost" tree. Can remove a 1-B tree if less than 90 years (as determined by bark characteristics as stated in Van Pelt) and competing with old/ mature 1-A tree.

E. In order to meet the Stocking Level (Col. 3 of the DxPre Table), first mark trees defined as Most Desirable (**1-A**) followed by trees defined as Less Desirable (**1-B**).

1. Most Desirable/Suitable Leave Trees: Trees that possess the following characteristics shall be the first choice for desirable/suitable leave trees:

a. **Dominant and Co-dominant Preferred Species:** These trees are taller on the average when compared to other trees in the unit. Order of preference is PP, WL, WP, DF, RC, LP, ES and WH. However, RC is not a preferred species in areas dominated by PP. Exception is unit 1 where RC > 12" dbh has preference. When the preferred species does not possess desirable tree characteristics, *vigor and growth* is given preference.

b. **Health:** With the exception of WL and WP, foliage shall be dark green in color. The crown shall cover one third or more of the tree all the way around it. Healthy trees are free of *severe insect or disease problems* and are not stressed. See definition of Severe Insect or Disease Problems in Attachment A.

c. Straight Bole: The bole or stem of the tree shall be relatively straight and have a single terminal leader.
d. Free of Physical Damage: Trees shall not have physical damage from fire, animals or weather on more than one-fourth of the circumference of the bole or more than three feet of length of the bole.
e. In addition to above described healthy dominant/co-dominant preferred species, healthy WP> 4.0" dbh are also Most Desirable Trees.
f. Where possible the largest diameter standing wildlife trees and down wood will be retained at levels in general marking guide.

2. **Less Desirable Leave Trees, but also Suitable:** When the average basal area of most desirable leave trees cannot be achieved with trees that possess the most desirable characteristics, the Contractor shall select trees with less desirable characteristics in the priority order (highest to lowest) listed below:
   a. Minor Defect: Preferred species with minor defect such as a minor crook, a small amount of animal damage, or mistletoe < *Hawksworth rating* 3.
   b. Intermediate preferred species followed by dominate or co-dominate PP, WP, LP, DF, RC, ES, and WH, having desirable tree characteristics.
   c. Intermediate non-preferred species (GF, AF) having desirable tree characteristics. Intermediate trees are approx. one-half the height of dominate/co-dominate trees.
   d. Other Live Trees: Trees other than insect or disease damaged trees with at least 30% live crown and *height to diameter ratio* ≤ 1:100.
   f. Forked Trees: Those trees with two or more terminal leaders.
   g. Physical Damage: Trees that have physical damage on less than half the bole circumference and less than three feet in length. Physical damage may be caused by equipment, falling trees, lightning, wind, animals, etc.

III. **Vary the Density**:
A. The characteristics of available trees shall determine stocking level at most locations. In areas with mandatory leave trees (described above in II., A., and B.), the stocking level may be high. How high will depend on how many of these trees exist. In areas with Most Desirable trees, the basal area may be 20-60 ft^2/ac higher than required average providing only Most Desirable and mandatory trees are marked. The amount of required leave trees and Most Desirable Trees will determine how many Less Desirable trees should be marked.
B. There may be units where the stocking level will not be achieved due to a lack of suitable leave trees. This is acceptable providing the suitable trees are marked to leave. Suitable trees are those with characteristics described in E1 or E2 (above). Unsuitable trees are described in IV (below).
C. In general, retain a higher Basal Area within moister microsites and in stands dominated by RC and WH; lower Basal Area on dry sites within stands or dominated by DF and PP.

IV. Leave Tree Marking: Do Not Mark A-I (below): An exception shall be made for required leave trees (II., A., B.,C., and D. above). Where clumps are required, an exception would be made for E.

A. Hardwoods, or trees < 7.0" dbh.

IV. Leave Tree Marking: Do Not Mark A-I (below): ***continued***

B. Trees not expected to live for 10 years.

C. Trees with severe insect or disease problems.

D. Species listed as Do Not Retain (Col 4).

E. Other species within 30′ (stem to stem) of healthy Dominant or Co-dominant PP, WL or WP. This may be an individual or several of these species. i.e., Healthy PP, WL, WP should be marked within 30′ and beyond.

F. WL and DF with a *Hawksworth's Mistletoe rating* of 3 or more. See definition in Attachment A.

G. Conifer trees with a poor height to diameter ratio. See definition in Attachment A.

H. Trees within 75′ of an *Aspen stands*.

I. RC in areas dominated by PP and/or DF (i.e. dry sites).

3. DxPre Table

Subdivision No. (Col 1)	**Acres** (Col 2)	**Unit-average residual stocking** (Col. 3)	**Do Not Retain** (Col 4)	**Comments** (Col. 5) *See Footnote in Table 1
21	90	100 ft^2/ac	GF <30″ dbh; except green culls can be counted as both a leave tree and as a wildlife tree.	In addition to the Leave-Tree Guidelines: apply variable density thinning from below (d/D=.8) as described in General Marking Guide (Attachment C). Apply riparian, course woody debris and snag design criteria. Leave 2-3 clumps per acre. Site mostly dry. Irregular spacing should be dictated by pattern of existing dominant trees. Vary spacing as mosaic of site quality and tree diameter changes. Where tree diameters are ≥ 25-inches diameter breast height, retain up to 120 ft^2; where tree diameters are ≤ 14-inches diameter breast height, tighten spacing to 70 ft^2. Existing blowdown/ windthrow is very heavy. Priority removal of dead and down green DF due to high levels of DF beetle activity. Older fire remnant legacy ponderosa pine exists on the overstory with an 80+ year age class of fire regeneration below it. Special Features: Buffer 25′ Either side of swale. Top and bottom of the swales in the unit are flagged pink/black candy stripe.

Top of Feature	Lat.	Long
Dry Swale 1-21	47_46′_03.1″	120_41′_07.5″
Dry Swale 2-21	47_46′_01.9″	120-41′_06.5″
Dry Swale 3-21	47-45′_57.7″	120_41′_07.7″
Dry Swale 4-21	47_45′_46.7″	120_41′_15.9″
Dry Swale 5-21	47_45′_49.9″	120-41′_12.3″
Dry Swale 6-21	47_45′_42.3″	120_41′_18.5″

Watchouts: DF with DMT.

Subdivision No. (Col 1)	**Acres** (Col 2)	**Unit-average residual stocking** (Col. 3)	**Do Not Retain** (Col 4)	**Comments** (Col. 5) *See Footnote in Table 1
22	23	90 ft^2/ac	GF <30" dbh; except green culls can be counted as both a leave tree and as a wildlife tree.	In addition to the Leave-Tree Guidelines: apply variable density thinning from below (d/D=.8) as described in General Marking Guide (Attachment C). Apply riparian, course woody debris and snag design criteria. Leave 2-3 clumps per acre. Site mostly dry. Irregular spacing should be dictated by pattern of existing dominant trees. Vary spacing as mosaic of site quality and tree diameter changes. Where tree diameters are ≥ 25-inches diameter breast height, retain up to 120 ft^2; where tree diameters are ≤ 14-inches diameter breast height, tighten spacing to 70 ft^2. Special Features: Buffer 50' Top of Scarp Top of Feature / Lat. / Long Scarp 1-22 / 47_45'_32.2" / 120_41'_36.2" Scarp 2-22 / 47_45'_29.5 / 120_41'_29.7" Watchouts: DF with DMT.

Subdivision No. (Col 1)	**Acres** (Col 2)	**Unit-average residual stocking** (Col. 3)	**Do Not Retain** (Col 4)	**Comments** (Col. 5) *See Footnote in Table 1
23	248	120 ft^2/ac	GF <30" dbh; except green culls can be counted as both a leave tree and as a wildlife tree.	In addition to the Leave-Tree Guidelines: Apply variable density thinning from below (d/D=.8) as described in General Marking Guide (Attachment C). Apply riparian, course woody debris and snag design criteria. Leave 2-3 clumps per acre. Dry site. Irregular spacing should be dictated by pattern of existing dominant trees. Vary spacing as mosaic of site quality and tree diameter changes. Where tree diameters are ≥ 25-inches diameter breast height, retain up to 160 ft^2; where tree diameters are ≤ 14-inches diameter breast height, tighten spacing to 70 ft^2. **Wildlife**- Goshawk timing restrictions apply.

Low Pole Unit Reconnaissance Points